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ABSTRACT

Recently, behavioral researchers have extended the application of operant conditioning techniques from the behavior management of individual students to the behavior management of entire classes of students. This extension has been facilitated through the utilization of such contingencies as the interdependent group-oriented contingency. The present annotated bibliography includes 26 behavioral studies from 1968-1972 which have empirically evaluated the relative effectiveness of interdependent group-oriented contingencies within the classroom setting. One objective of the bibliography is to delineate specific interdependent group-oriented contingencies which can be added to the school psychologist's or counselor's repertoire of behavioral remediation procedures for classroom interventions. (Author)

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Classroom Interdependent Group-Oriented Contingencies:

An Annotated Bibliography

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Abstract

Recently, behavioral researchers have extended the application of operant conditioning techniques from the behavior management of individual students to the behavior management of entire classes of students. This extension has been facilitated through the utilization of such contingencies as the interdependent group-oriented contingency. The present annotated bibliography includes 26 behavioral studies from 1968-1972 which have empirically evaluated the relative effectiveness of interdependent group-oriented contingencies within the classroom setting. One objective of the bibliogrpahy is to delineate specific interdependent group-oriented contingencies which can be added to the school psychologist's or counselor's repertoire of behavioral remediation procedures for classroom interventions.

Preface

Beginning in the 1960's, an approach known as "behavior modification" or more technically as "applied behavior analysis" has been increasingly utilized in the remediation of classroom problems. Initially, behavioral researchers applied operant conditioning techniques to the behavior management of individual students within the classroom. More recently, behavioral researchers have extended the application of operant conditioning techniques to the behavior management of all students within the classroom. This extension has been facilitated through the utilization of several types of classroom group-oriented contingencies.[1]

One such contingency, the interdependent group-oriented contingency, has received the most recent empirical evaluation within the classroom setting. In this type of contingency each class member is dependent upon a level of group performance for contingent consequences. For example, free-time activities for the entire class could be made contingent upon each student successfully completing 15 of 20 arithmetic problems.

The purpose of this paper is to provide an annotated bibliography consisting of those behavioral studies from 1968-1972 which have empirically evaluated the relative effectiveness of interdependent group-oriented contingencies within the classroom setting. This annotated bibliography is intended to:

1. indicate the variety of classroom settings, size of classes, and the variety of problems treated by the implementation of interdependent group-oriented contingencies.

2. indicate the experimental designs used to verify whether or not the contingencies were actually responsible for changes in behavior.

3. present the research findings on the relative effectiveness of the

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[1] For a review of classroom group-oriented contingencies see: Litow, L. & Pumroy, D. K. A brief review of classroom group-oriented contingencies. Journal of Applied Behavior Analysis, 1975, 8, 341-347.

contingencies.

4. Delineate the specific interdependent group-oriented contingencies which can be added to the school psychologist's or counselor's repertoire of behavioral remediation procedures for classroom interventions.

The format of the annotated bibliography includes:

1. reference.
2. statement of treatment objectives.
3. subjects and settings.
4. baseline recording methodology.
5. treatment procedures.
6. experimental design.
7. results.

In cases where only abstracts or citation studies were available, the format is abbreviated, especially for references in Dissertation Abstracts International.

Diagnostic Table of Contents*

Problem	Setting				
	Preschool	Elementary	Secondary	College	Special Class
Increasing Appropriate Study Behavior	16, 17	13, 16, 17, 25	1, 9	26	7, 14, 19
Improving Academic Performance	24	12, 24	22	26	6, 7
Decreasing Disruptive Behaviors	10	3, 4, 8, 15, 18, 20 21, 25			2, 5, 6, 11, 23

*The numbers in the intersecting squares refer to specific studies. Incorporated from J. D. Krumboltz and C. E. Thoresen. Behavioral counseling. New York: Holt, Rinehart & Winston, 1969, p. xi.

1. Andrews, H. B. The effects of group contingent reinforcement on a student behavior. Dissertation Abstracts International, 1971, 32 (1-A),227. Document resume available in Research in Education, 1971, ED 049 492.

The treatment objective was to appraise the effect of group contingent reinforcement on task-relevant behavior of a class of nine junior high school students attending summer school for remedial mathematics instruction. In addition, the study was designed to assess the effects of group contingencies on peer interactions, and to compare the effects of teacher contingent attention and group contingent reward. Baseline data were gathered which indicated the percent of time that the students were engaged in behavior relevant to assigned academic tasks. During the treatment phase (one week) the students were told that they could earn free time contingent on the entire group consistently performing academically related tasks. Providing a visual display of the cumulatively earned free time, a clock was allowed to run when the entire class was working on assigned academic materials. When an inappropriate behavior was emitted by any student, the clock was stopped by the teacher and a minimally audible buzzer was sounded. The clock was restarted after the teacher was satisfied that the entire group was again engaged in task-relevant behavior. The experimental design included three 1-week phases: group contingency plus teacher-attention contingencies, teacher-attention contingencies, and group contingency, The teacher-attention contingencies involved the teacher emitting verbal and nonverbal attention to individual students who were engaged in task-relevant behavior. The results indicated that the introduction of the group contingency had an immediate effect in increasing the percent of task-relevant behavior from the baseline level. The addition of teacher-attention contingencies to the group contingency had little apparent effect on the group's performance. The removal of the group contingency resulted in a decrease in the percent of task-relevant behavior although the teacher-attention contingencies remained in effect. The reintroduction of the group contingency and the reversal of the teacher-attention contingencies resulted in a noticeable increase in task-relevant behavior.

2. Axelrod, S. Comparison of individual and group contingencies in the special class. Dissertation Abstracts International, 1970, 31 (5-A), 2212-2213.

The treatment objectives were to reduce the frequencies of out-or-seat behavior and disturbing-others behavior in two classes for the mentally retarded, containing 14 black children each. Initial baseline data were gathered over five 1-hour sessions. Treatment consisted of the initial implementation of individual response-cost contingencies in one class and a group response-cost contingency in the other class. For the individual response-cost contingencies class the teacher wrote each child's name on the blackboard with the numbers 25, 24,...,0 below each name. Following a disruptive behavior, the teacher pointed out the offender and crossed off the highest intact number under the offender's name. Each child received a daily number of tokens corresponding to the highest number under his name. For the group response-cost contingency class the teacher

wrote the numbers 25, 24, ..., 0 on the blackboard, pointed out the offender and crossed off the highest number following a disruptive act by any student in the class. All the children received the daily number of tokens which matched the highest number on the blackboard. The tokens in each class were exchangeable for a variety of candies and toys. The experimental design included a reversal to the baseline condition, a subsequent reversal to the otherclass's response-cost contingency, and another reversal to baseline. An analysis of variance indicated that the frequency of disruptive behaviors was significantly lower during both contingency conditions than during the three baseline conditions, but that there was no significant differences between the two contingency conditions, nor between the three baseline conditions.

3. Barrish, H. H., Saunders, M., and Wolf, M. M. Good behavior game: Effects of individual contingencies for group sonsequences on disruptive behavior in a classroom. Journal of Applied Behavior Analysis, 1969, 2, 119-124.

The treatment objective was to decrease the frequencies of out-of-seat and talking-out behaviors of a regular fourth-grade class of 24 students. Atrer baseline rates of the target behaviors were obtained, the class was divided into two teams "to play a game.' Each out-of-seat or talking-out response by an individual student resulted in a mark being placed on the blackboard, which meant a possible loss of privileges by all members of the student's team. The priveleges included extra recess, first to line up for lunch, time for special projects, stars and name tags, as well as winning the game. The game significantly and reliably reduced the frequencies of the two target behaviors. The experimental analyses, involving elements of both multiple baseline and reversal strategies, demonstrated that the treatment effect could be replicated across subject matter periods (reading and mathematics) and that the game had a continuing role in maintaining the reduced level of the target behaviors.

4. Eleftherios, C. P., Shoudt, J. T., and Strang, H.R. The game machine: a technological approach to classroom control. Journal of School Psychology, 1972, 10, 55-59.

The treatment objective was to reduce the frequency of out-of-seat behavior of 22 first graders in a rural public school. A baseline of nine sessions was established for 30 minutes per school morning. Treatment consisted of a group contingency implemented by an electro-mechanical feedback system. The apparatus consisted of a display of horizontal and vertical lights. The horizontal lights were illuminated every 30 seconds by the experimenter if no out-of-seat behavior occurred during the 30-second interval. After the class had accumulated eight horizontal lights, a vertical light was earned and the class again started to accumulate eight more horizontal lights. During the horizontal progression, any out-of-seat behavior immediately resulted in a resetting of the horizontal lights to zero by the experimenter while no vertical lights were lost. For each vertical light earned, the class received two minutes of recess time. If all six vertical lights were earned, the class received a party with milk and cookies. The experimental design included a reversal by the reinforcement of out-of-seat behavior, a second baseline period, and a reversal to the treatment procedures.

The results indicated that the treatment procedures yielded a substantial and significant decrease in out-of-seat behavior. The first reversal resulted in an increase of the frequency of out-of-seat behavior. Reversal to the treatment procedures resulted in a decrease of the frequency of out-of-seat behavior.

5. Gallagher, P., Sulzbacher, S. I, and Shores, R. L. A group contingency for classroom management of emotionally disturbed children. Paper read to Kansas Chapter, The Council for Exceptional Children, Witchita, March, 1967. Cited by S. Axelrod. Token reinforcement programs in special classes. Exceptional Children, 1971, 37, 376-377.

The treatment objective was to reduce the frequency of out-of-seat behavior of five boys who were enrolled in an intermediate class for emotionally disturbed children. The children, ranging in age from 7-11 to 11-8 years, were informed that they could have a 24-minute coke break at the end of the day if they did not leave their seats without permission. A chart was posted which displayed 2-minute segments from 24 to 0. Each child's name was assigned a different color chalk. When a child left his seat without permission, the teacher marked off two minutes with the designated chalk from the entire class's coke time. The frequency of the boys' out-of-seat behavior decreased from an average of 69.5 to 1.0 times per day. An overall decline in disruptive classroom behaviors also was reported. The treatment program was implemented by one master and three student teachers.

6. Graubard, P. S. Utilizing the group in teaching disturbed delinquents to learn. Exceptional Children, 1969, 36, 267-272.

The treatment objectives were to reduce the frequency of inappropriate classroom behaviors and to achieve reading gains in an experimental classroom of eight delinquent boys, ranging in age from 10 to 12 years, during a month in the summer. The class was taught under three conditions. In the first condition (group reinforcement contingency) group consensus determined backup material reinforcers such as kites, goldfish, shirts, baseball bats, marbles, and money. Points were assigned to each of the backup reinforcers and the acquisition of these group reinforcers was contingent upon each boy in the group obtaining a minimum number of points. Points were earned for following school rules and achieving specified outputs of academic work explicitly defined for subject areas. In addition, the teacher rang a bonus bell on a variable interval schedule during which times the teacher would dispense bonus points to each boy if the entire class was behaving appropriately when the bell rang. In the second condition, noncontingent points were given at the beginning of the day and after several sessions the group contingency condition was reinstated. In the third condition, group and individual reinforcement contingencies were implemented. Each boy still had to obtain a minimum number of behavior and academic points to win group reinforcers. However, now individual boys were also allowed to work for self-selected reinforcers which were made contingent upon obtaining additional specified numbers of academic points. The data indicated that the contingent reinforcement procedures used in the classroom were effective in increasing the academic output of the group, in shaping appropriate classroom behaviors, and in eliminating disruptive behaviors. Making

rewards for all the boys contingent on each boy behaving appropriately proved superior to giving rewards on a noncontingent basis. Giving group reinforcers for appropriate classroom behavior plus individual reinforcers for academic behavior proved to be the most effective.

7. Graubard, P. S., Lanier, P., Weisert, H., and Miller, M. B. An investigation into the use of indigenous grouping as the reinforcing agent in teaching maladjusted boys to read. Final Report. Yeshiva University, School of Education and Community Administration, June 1970, Project No. 8-0174, Grant No. OEG-8-08174-4353, USOE Bureau of Education for the Handicapped. Document resume available in Research in Education, 1971, ED 046 671.

The treatment objective was to assess the relative effectiveness of different reinforcement systems versus traditional teaching with maladjusted boys. The subjects were 60 boys in two sixth- and two seventh-grade Language Art classes of a special school for delinquents; however, total data were gathered on only 26 boys. Appropriate study behavior and reading achievement were the target behaviors. A 4-week baseline period was instituted during the first two 45-minute Language Arts periods of each school day. Treatment consisted of the establishment and variation of a token economy system in each class for at least part of the two periods. Rewards were earned through the accumulation of points. Work points were earned on the basis of number of completed individually assigned programmed materials with a specified degree of accuracy within specified time limits. Behavior points were earned for following behavioral rules at those times when a timer rang on a variable interval schedule during one of the two periods. There were three variations of the token economy system. In the Group + Individual + Group Reinforcement condition, behavior points were earned only if the entire class followed the behavioral rules, individual points were earned for academic work, and everyone in the class had to earn a minimum number of points before the class could cash in its tokens. In the Group + Individual + Individual Reinforcement condition, behavior points were earned only if the entire class followed the behavioral rules, individual points were earned for academic work, and individual students could cash in their tokens after earning a minimum number of points. In the Individual + Individual + Individual Reinforcement condition, behavior points, work points, and token exchange were administered individually. A non-contingent reinforcement phase was introduced between the fourth and fifth months of the study. The main findings indicated that 1) the subjects improved consistently in emitting appropriate study behavior; 2) subjects achieved academic gains in reading skills; 3) for some subjects rate of work increased; 4) group-delivered reinforcement proved superior to individually delivered reinforcement in most cases.

8. Hall, R. V., Fox, R., Willard, D., Goldsmith, L., Emerson, M., Owen, M., Davis, F., and Porcia, E. The teacher as observer and experimenter in the modification of disrupting and talking-out behaviors. Journal of Applied Behavior Analysis,

1971, 4, 141-149.

In the fifth of six experiments the treatment objective was to decrease unauthorized talking-out to a teacher by a class of 30 first-grade children in an all-black poverty area school. Baseline data of talk-outs were recorded by the teacher over a 4-week period during a discussion and seat-working activity period. Treatment consisted of teacher praise for student hand-raising plus a group contingency in which the entire class was allowed to play a favorite game at the end of the day if the class members raised their hands before talking to the teacher. Because the lowest rate observed during baseline was 13 talk-outs per day, the teacher set the criterion for class access to the game at 12 or fewer talk-outs per day. The number of talk-outs decreased throughout the treatment period of 20 sesssions. A reversal to baseline resulted in an increase in talk-outs to a rate which was higher than at anytime during treatment. Reinstituting the treatment resulted in a decrease of talk-outs.

9. Hall, R. V., Panyan, M., Rabon, D., and Broden, M. Teacher applied contingencies and appropriate classroom behavior. Paper presented at the American Psychological Association, San Francisco, September 1968. Cited by K. I. Altman and T. E. Linton. Operant conditioning in the classroom setting: a review of the research. Journal of Educational Research, 1971, 64, 279.

The treatment objective was to increase the mean rate of study behavior in a seventh-grade class of 30 students. The mean rate of study behavior was increased from 47 to 65 percent by having the teacher increase the frequency of her attention to appropriate study behavior, and decrease the frequency of her attention to inappropriate study behavior. A further increase in the mean rate of study behavior was achieved by the implementation of a group contingency utilizing a response-cost procedure. The treatment consisted of a chalk mark being placed on the blackboard whenever any student disrupted the class or was out of his seat inappropriately for five seconds. Each chalk mark decreased the duration of the usual 5-minute break between periods by 10 seconds, and 24 marks eliminated the break. The experimental design included a reversal to baseline and a subsequent reversal to the treatment procedure. The results indicated that the mean rate of study behavior increased to 76 percent during treatment. Reversal to baseline resulted in a decrease in study behavior of approximately 16 percent. The subsequent reversal to the treatment procedure increased the study rate to 81 percent.

10. Herman, S. H., and Tramontana, J. Instructions and group versus individual reinforcement in modifying disruptive group behavior. Journal of Applied Behavior Analysis, 1971, 4, 113-119.

The treatment objective was to decrease the frequency of disruptive rest-period behavior of six Head Start children, ranging in age from 5-5 to 6-1 years. The six children were matched into two groups on the basis of rates of disruptive behavior during rest periods. Treatment consisted of modifying

the disruptive behavior in an experimental room within the school by using individual reinforcement contingencies for one group and a group reinforcement contingency for the other group. The three children in the individual reinforcement contingencies group were brought into the experimental room together and appropriate rest behaviors during daily 10-minute sessions were individually reinforced by tokens (ping pong balls placed in plastic bins) which were exchangeable for toys. The three children in the group reinforcement contingency group were reinforced as a group for appropriate rest behavior exhibited at the same time by the three children. While the reinforcement procedures reduced the disruptive behavior somewhat, the addition of instructions to the reinforcement procedures reduced the disruptive behavior to near zero for both groups. There were no differential effects between the individual and group reinforcement contingencies in reducing disruptive rest-period behavior. Although experimental control over the target behavior was demonstrated, there was little carryover from the experimental room to the regular classroom.

11. Hotchkiss, J. M. The modification of maladaptive behavior of a class of educationally handicapped children by operant conditioning techniques. Dissertation Abstracts, 1967, 27 (12-A), 4129-4130.

The treatment objective was to reduce maladaptive behavior in a special class of elementary school children, ranging in age from 7-3 to 10-10 years. The subjects included all children enrolled in two of the three special classes for educationally handicapped children in one elementary school. One class served as an experimental class while the other class served as a control class. The experimental period lasted for 22 consecutive school days. During the experimental hour an observer watched the experimental class from one corner of the room where he operated a stop clock. If no inappropriate behavior occurred during a specific time interval while the clock was running, the class was given one penny. If any maladaptive behavior did occur, the clock was stopped, reset, and restarted when all behavior was acceptable. At the end of the experimental hour the money was evenly distributed among the class. The children were then allowed to buy candy, put their money in a "bank" or take the money home with them. During the experimental hour the teacher ignored all maladaptive behavior and attempted to reward all adaptive behavior of each child whom she observed. No systematic operant techniques were used with the control class. Post-experimental scores on various instruments were compared with the pre-experimental scores on the same instruments. The major findings included: 1) a significant reduction in the occurrence of maladaptive behavior in the experimental classroom; 2) a significant reduction in the background sound level of the experimental class; 3) a significant decrease in teacher reinforcement of maladaptive behavior; 4) a significant reduction of hyperactive and maladaptive behavior in the total school setting; 5) not obtaining similar findings in the control class.

12. Jacobs, J. F. A comparison of group and individual rewards in teaching reading to slow learners. Final Report. University of Florida, College of Education, June 1970, Project No. 9-0257, Grant No. OEG-4-9-190257-0045 (010), USOE Bureau of Research. Document resume available in Research in Education, 1971,

ED 044 265.

The treatment objectives were to compare the effects of 1) individual versus group rewards on developing reading skills; 2) no reward, random, group, individual, and combined individual with group reward schedules; 3) novelty of rewards independent of the contingencies and of the Hawthorne effect. All 129 fourth-grade students enrolled at a rural middle school were used in the study. The population was stratified by race, sex, and homeroom; and randomly assigned to one of five experimental conditions: 1) A control class worked for one hour daily with S.R.A. reading materials while receiving only the assistance, guidance, and praise used in the normal classroom setting; 2) Using identical materials, a random reward class received at predetermined intervals the reward of released time on a noncontingent basis; 3) In an individual rewards class as each child completed an exercise he was rewarded with three minutes of released time to be deducted from the end of the class period; 4) In addition to individual rewards, children in the combined individual with group rewards class were awarded additional released time when the entire class displayed on-task behavior for predetermined intervals; 5) In the group reward class the children received released time only when the entire class was working in an appropriate manner for a predetermined period of time. To control for teaching skill and student-teacher interactions, teachers were randomly assigned on a daily basis to one of the five experimental conditions. Individual rewards were administered by means of individual cards upon which was written the time at which the student could be excused to participate in a recreation program. As rewards were distributed, each card was marked for a progressively earlier dismissal time. Group rewards were administered by the advancement of the minute hand of an easily visible classroom clock. An analysis of mean gain scores of five subtests of the Stanford Achievement Test Battery, which were administered before and after the 11-week experimental period, suggested that the group rewards appeared to provide the most influential control over classroom activity. The data indicated that the group contingencies were approximately twice as powerful as individual contingencies and that the individual contingencies actually served to impede the maximum gains obtained under group reward conditions.

13. Levin, L. A comparison of individual and group contingencies with third and fourth grade children. Probe, 1971, 1, 12-13.

The treatment objective was to compare the effectiveness of a group contingency versus an individual contingency upon the amount of time spent on attending to S.R.A. reading materials by 40 third- and fourth-grade children divided into 10 groups of four children each. Baseline data included the amount of time spent by each of the groups in designated study behaviors. Treatment consisted of making access to a Reward Room (filled with games, toys, books, etc.) contingent on either individual completion of academic work or on group completion of academic work. Any child in five of the 10 groups gained access to the Reward Room as soon as any child finished his work for the day. In each of the five other groups access to the Reward Room was possible when all four children of a group had completed their work for the day. The results indicated that there were no significant differences found between group and individual contingencies upon the mean frequency of on-task study behaviors for both groups of children. There was also no significant difference found between the baseline and treatment rates of on-task study behavior for this population of children, suggesting that the reinforcement contingencies,

per se, had no significant impact on this population.

14. McNamara, J. R. Behavioral intervention in the classroom: changing students and training a teacher. Adolescence, 1971, 6, 433-440.

The treatment objective was to increase the percentage of students who obtained their class folders within three minutes of a teacher's verbal prompt to do so. Three classes of a special school for behavior problem junior high boys participated in the study. Within each class, which did not exceed 10 boys, there was a pre-existing token economy. Baseline consisted of recording the number of students who obtained their folders within three minutes of the teacher's verbal prompt to do so. Treatment consisted of each class being informed by the same teacher that he wanted to see how many students could obtain their folders within three minutes while he announced the time remaining within the 3-minute period. For one class there was no further treatment. Another class received positive group consequation in which three extra token points were given to each member of the class if everyone in the class obtained their folder within the 3-minute period. The remaining class received positive individual consequation in which only those students who obtained their folders within the 3-minute period received three extra token points. The results indicated that the highest percentage of students obtaining their folders was obtained during treatment. Within treatment there was a higher percentage within the group consequation class than the individual consequation class. The individual consequation class had a higher percentage than the nonconsequation class.

15. Medland, M. B., and Stachnik, T. J. Good behavior game: a replication and systematic analysis. Journal of Applied Behavior Analysis, 1972, 5, 45-51.

The treatment objectives were to reduce the frequencies of out-of-seat, talking-out, and disruptive behaviors of a public school class of 28 fifth graders divided into two separate reading groups. Baseline lasted for five sessions and involved recording the incidences of the target behaviors by two high-school observers during the class's reading period. Treatment consisted of group contingencies involving rules, response feedback, and group consequences. Both reading groups or teams were instructed by the teacher that each out-of-seat, talking-out, or disruptive behavior by a team member would result in a mark against that team. Five or fewer team marks per day resulted in winning, which entitled the winning team or teams to three minutes of extra morning recess. Twenty or fewer team marks per week resulted in one hour extra activity time the following Monday afternoon. Each team could vote to exclude for one day a member who precluded winning by getting four or more marks in one day. Each team received feedback by two lights operated by the observers--a green light meant that "all is well" and a red light meant that "someone has made an error and the team should be careful." The experimental design included a reversal to baseline conditions and then a component analysis of the group contingencies which consisted of Rule, Rules + Lights, and Game (group consequences) phases. The results indicated that the game reduced the target behaviors' rates from their baseline rates by almost 99 percent for one group and 97 percent for the other group. The target behaviors' rates gradually increased after reversal to baseline conditions. The instatement of the Rules phase reduced the target behaviors' rates. During the Rules + Lights phase there was further reduction in rates. There was still further reduction in

in rates during the Game phase.

16. Packard, R. G. The control of "classroom attention": a group contingency for complex behavior. Journal of Applied Behavior Analysis, 1970, 3, 13-28.

The treatment objective was to increase attending behavior of four elementary school classes (kindergarten, third, fifth, and sixth grades). During the initial baseline sessions a stopwatch was used by the teacher of each class to obtain cumulative time measures of classroom attention. Subsequent baseline data were recorded by the teacher using a timer-light device. The first phase of treatment consisted of the teacher stating to the class the kinds of attention that she wanted from the class, and providing feedback to the class by means of a red light being illuminated on the timer-light device when one or more students were inattentive. The second phase of treatment consisted of coupling instructions and associated feedback with group reinforcement contingencies in which reinforcement for attending behavior was administered to the whole class if the class reached a specified criterion of attending behavior. Reinforcement for attending behavior in the kindergarten class consisted of access to play activity. Reinforcement for attending behavior in the third-, fifth-, and sixth-grade classes consisted of tokens or points which were exchangeable for various privleges. The experimental design included a reversal to the first phase of treatment and a subsequent reversal to the second phase of the treatment. While the instructions with associated feedback had mixed effects on attention level, the group reinforcement contingencies significantly increased and maintained the cumulative attention time of each class. Reversal to instructions with associated feedback resulted in a gradual decrease in class attention time. Reinstituting the group contingencies reversed the decrease in class attention time.

17. Prentice, B. S. The effectiveness of group versus individual reinforcement in shaping attentive classroom behavior. Dissertation Abstracts International, 1971, 31 (8-A), 4044.

The treatment objective was to compare the effectiveness of individual reinforcement versus group reinforcement in shaping attentive classroom behavior of public school children in 12 regular classrooms, ranging from kindergarten through grade six. Baseline data included the recording of inappropriate classroom behavior during a predetermined daily one-half hour period for one week. Treatment consisted of distributing sweet and non-sweet edibles for one week contingent on either individual attentive classroom behavior or on the whole class's attentive classroom behavior. Six classrooms were assigned to the group reinforcement condition and the other six classes were assigned to the individual reinforcement condition. The experimental design included a reversal to baseline for two weeks and subsequent reversal to the other treatment group's reinforcement contingency for one week. A two-way analysis of variance indicated that 1) there was no significant differences in the effectiveness of individual reinforcement or group reinforcement contingencies in shaping attentive classroom behaviors; 2) individual and group reinforcement contingencies sharply reduced inappropriate classroom behaviors and effectively shaped attentive behaviors; 3) there was no significant effect in the order of the experimental trials.

18. Quesenbery, B. G. Contingency management in the classroom: a demonstration of a no-cost plan and investigation of interval reinforcement effects on a group operant. Dissertation Abstracts International, 1972, 32 (10-B), 6038.

The treatment objective was to compare the effectiveness of fixed interval group reinforcement versus variable interval group reinforcement schecules in reducing inappropriate verbalizing of two matched fifth-grade classes. Baseline data included a 10-day period of recording the rate of inappropriate verbalizing by continuous in-class observation of unauthorized talk or obnoxious oral noise-making. Treatment consisted of teams in one class being observed at fixed intervals by the teacher and teams in the other class being observed at variable intervals by the teacher; and the teams being awarded tokens (chalk marks on the blackboard) for following a rule which prohibited unauthorized talking. Teams which earned five or all of six possible points were granted eight minutes of free time at the end of the class period while the losing team or teams continued working. The experimental design included a reversal to baseline, a subsequent reversal to treatment procedures, and another reversal to baseline. The results indicated that both group reinforcement contingencies reduced markedly the amount of inappropriate verbalizing in both classes from the baseline levels. No differences were found between the two schedules of group reinforcement in reducing the frequency of the target behavior. Finally, evidence pointed towards possible loss in the effectiveness of the group contingencies between the first and second conditioning-extinction phases of the study.

19. Ruppert, M. P. A study of the effect of individual and group rewards for appropriate social classroom behavior upon social classroom behavior in a junior high school setting. Dissertation Abstracts International, 1972, 32 (12-A), 6816.

The treatment objective was to increase the rate of appropriate social behavior in two junior high school classes of special education children. The two classes were observed for four months and in each class the rate of appropriate social behavior during baseline was compared with the rate of appropriate social behavior effected by group and individual rewards. Individual rewards effected a statistically significant increase in the rate of appropriate social behavior in both classes. Group rewards effected a statistically significant increase in the rate of appropriate social behavior in one of the two classes.

20. Schmidt, G. W., and Ulrich, R. E. Effects of group contingent events upon classroom noise. Journal of Applied Behavior Analysis, 1969, 2, 171-179.

The treatment objective in the first of three studies was to suppress excessive classroom noise during a daily free-study period in a class of 29 fourth-grade elementary students. Baseline data consisted of 10-day recording sessions (40-60 minutes) of decibel readings from the dial of a decibel meter located in the classroom. Treatment consisted of the implementation of a group contingency in which the class was allowed a 2-minute addition to the class's gym period and a 2-minute break contingent upon the maintenance of each unbroken 10-minute quiet period as monitored on the decibel meter. An electric timer with a buzzer was

used by the experimenter to signal to the children when they had exceeded the sound intensity limit of 42 decibels. Transgressions of the sound limit resulted in a delay of reinforcement by the resetting of the timer to the full 10-minute interval. The experimental design included a reversal to baseline and a subsequent reversal to the treatment condition. The first session of the treatment period resulted in an immediate decrease in sound intensity which was maintained until reversal to baseline conditions. During the reversal to baseline, the sound intensity increased and with the subsequent reversal to the treatment condition the sound level decreased once again.

21. Schmidt, G. W., and Ulrich, R. E. Effects of group contingent events upon classroom noise. Journal of Applied Behavior Analysis, 1969, 2, 171-179.

The treatment objectives in the second of three studies were to suppress excessive classroom noise and to reduce the frequency of out-of-seat behavior during reading period in a class of 28 second-grade elementary students. Baseline data consisted of a 13-day recording period (20 minutes per day) of decibel readings and frequency of out-of-seat behavior. Treatment consisted of two phases. The first phase consisted of the implementation of a group contingency in which the class was allowed a 2-minute addition to the class's gym period for each unbroken 5-minute quiet period. A harmonica was used by the experimenter to signal to the children that they had exceeded the sound intensity limit of 42 decibels. The second phase consisted of introducing individual contingencies in which individual children lost five minutes of gym time for exceeding the sound level or for being inappropriately out of their seats when a bell device rang on a variable interval schedule. During the second phase the class had to earn all of its gym period by receiving three minutes of gym time for each unbroken 5-minute quiet period. The experimental design included a reversal to baseline. The results indicated that during the first phase of treatment there was an immediate decrease in sound intensity from the baseline level and this decreased level was maintained during the second phase. The sound intensity level during reversal to baseline tended to increase slightly. The frequency of out-of-seat behavior was high during baseline and the first phase of treatment. During the second phase an immediate and substantial decrease was noted in the frequency of out-of-seat behavior which was maintained during the reversal to baseline conditions.

22. Sloggett, B. B. Use of group activities and team rewards to increase classroom productivity. Teaching Exceptional Children, 1971, 3, 54-66.

The treatment objective was to promote over a 12-week period academic development by shaping achievement behaviors in a low-achieving class of 24 Hawaiian boys, ranging in age from 14 to 17 years. Baseline data were not reported. The treatment consisted of a token reinforcement system for rewarding group rather than individual behavior. The class was divided into four matched groups of six members each. The groups were physically separated within the classroom by clustering desks into four distinct areas. Each boy contributed to his team's score, and each team received rewards as a unit. The boys earned daily points for their teams by their individual task performances and by their group oriented activities. At the end of each week the point count of each team was computed. On the basis of their weekly point totals, each team was assigned letter grades and received

back-up reinforcers ranging from cokes to excursions out of the school. In addition to the points and back-up reinforcers, the boys were praised liberally for all behaviors that earned points. A dramatic improvement was reported over the 12-week period in mathematical achievement scores (pre-post tests). A 4-day mid-semester experiment revealed that class productivity was far superior under reinforcement than nonreinforcement conditions. As the semester proceeded, misbehavior decreased markedly while there appeared to be an increase in self-imposed peer pressure for good conduct. Attendance in the class increased and surpassed the class average attendance for the entire school.

23. Sulzbacher, S. I., and Houser, J. E. A tactic to eliminate disruptive behaviors in the classroom: group contingent consequences. American Journal of Mental Deficiency, 1968, 73, 88-90.

The treatment objective was to reduce the frequency of disruptive behavior arising from occurrences of the "naughty-finger" in a primary level class of 14 educable mentally retarded children, ranging in age from 6-7 to 10-6 years. After a baseline frequency of undesirable behavior was obtained, the teacher implemented a group response-cost contingency in which the class lost one minute of recess from a special 10-minute recess at the end of the day whenever a disruptive behavior relating to the naughty finger occurred. A bracket with 10 cards numbered one through ten was mounted in front of the classroom. The class was instructed that the teacher would flip down a card to indicate the loss of a minute of the recess time. The results indicated that there was immediate deceleration of the target behaviors and a subsequent gradual acceleration when the group response-cost contingency was removed.

24. Turknett, R. L. A study of the differential effects of individual versus group reward conditions on the creative productions of elementary school children. Dissertation Abstracts International, 1972, 32 (10-A), 5625.

The main treatment objective was to compare the effects of group versus individual reward on the scores of the Figural Form B of the Torrance Tests of Creative Thinking. Four classrooms at each of three grade levels (kindergarten, second, and fourth) were selected and subjects within each classroom were randomly assigned to an individual reward condition or a group reward condition. Subjects in the individual reward condition were told that the person who thought of the most unusual ideas on the tests would receive a five dollar prize. Subjects in the group reward condition were told that the classroom which thought of the most unusual ideas on the tests would receive a five dollar prize. Tests were scored on the basis of fluency, flexibility, originality, and elaboration. For the originality dimension of creativity evidence was found for rejecting the principal hypothesis that there would be no significant differences in creativity scores under the group and individual reward conditions. It was reported that the individual reward condition generally seemed to be more motivating, but statistically significant differences were not obtained in fluency, flexibility, and elaboration scores. Although no significant differences were obtained in the effects of the individual and group reward conditions at the various levels, scores under the individual reward condition were higher at all grade levels.

25. Wasik, B. H., and Simmons, J. T. Management of small-group behavior within a first grade classroom. Proceedings of the 79th Annual Convention of the American Psychological Association, 1971, 6, 667-668.

The treatment objectives were to 1) decrease the frequency with which children left small work groups; 2) increase the amount of appropriate behaviors within the small work groups; 3) decrease the amount of time that the teacher spent in responding to inappropriate behaviors in a rural Southern class of 25 first graders. Each group of five to six children rotated daily through five learning centers. Baseline data consisted of 1) a frequency of the number of times that a child inappropriately left a learning center; 2) categorization of 10 children's behaviors as appropriate or inappropriate by the use of the Coping Analysis Schedule for Educational Settings; 3) coding the teacher's interactions with the children as positive, neutral, structuring, redirecting, or negative. Treatment consisted of the implementation of group contingencies in which a daily 30-minute special activity time was made contingent on no one inappropriately leaving the group during the day. If a group member inappropriately left his group, that group lost 10 minutes of its activity time. The experimental design included a reversal to baseline conditions and a subsequent reversal to the treatment conditions. The results indicated that the frequency of inappropriately leaving the learning centers quickly decreased from the first baseline level during the treatment sessions, increased after reversal to baseline, and decreased again after reversal to treatment. During the two treatment periods, the amount of appropriate behaviors within the groups increased over the baseline levels. There were also decreases in the amount of time that the teacher spent in redirecting and using negative interactions.

26. Witte, P. H. The effects of group reward structure on interracial acceptance, peer tutoring, and academic performance. Dissertation Abstracts International, 1972, 32 (9-A), 5367.

The treatment objective was to compare the effects of group versus individual reward structure upon interracial peer tutoring, interracial interaction, racial isolation, interracial acceptance, and academic achievement in two biracial urban junior college classes of introductory sociology students. One class served as a comparison group using the traditional individual reward system of grades. In the experimental class, an A-B-A-C design was followed in which the "A" periods consisted of the individual reward system. During the "B" and "C" periods, variations of the group reward system were instituted in which the experimental class was divided into four comparable 8-man biracial groups. Each student received his group's average grade on the weekly tests during these periods, rather than his individual grade. Weekly tests on textbook material served as the dependent measure for academic performance. Systematic observation of classroom activity by trained observers as recorded on behavioral rating charts and seating patterns served as the dependent measure for peer tutoring, racial isolation, and interracial interaction. Responses to an attitudinal questionnaire served as the dependent measure for interracial acceptance. The test score data indicated no significant differences in academic performance between the two classes. The behavior data indicated that interracial peer tutoring and interaction increased significantly during periods of group reward. Racial isolation as measured by a seating aggregate index decreased during the group contingency periods. The attitudinal questionnaire data indicated a much higher rate of interracial acceptance among students in the experimental class than in the comparison class.